IN THE CLAIMS

The following is a complete listing of the claims, which replaces all previous versions and listings of the claims.

1. (currently amended) A control circuit for an electrical relay, the circuit comprising:

a solid state switch configured to be coupled to a relay operator to control energization of the relay operator; and

a leakage current suppression circuit configured to be coupled electrically in parallel with ~~the relay operator~~ the solid state switch to conduct leakage current leaking into the control circuit and to place the switch in a conducting state and thereby to energize the relay operator when a control signal current level is above [[a]] an input leakage current threshold, and to place the switch in a non-conducting state and thereby to deenergize the relay operator when the control signal level is below [[a]] an input leakage current threshold.

2. (original) The circuit of claim 1, wherein the solid state switch and the leakage current suppression circuit are coupled to a DC bus, and the solid state switch is configured to be coupled in series with the relay operator.

3. (original) The circuit of claim 1, further comprising a signal conditioning circuit for conditioning the control signal.

4. (original) The circuit of claim 1, further comprising a rectifier circuit for converting alternating current control signals to direct current control signals.

5. (original) The circuit of claim 4, further comprising a signal conditioning circuit for smoothing the direct current control signals.

6. (original) The circuit of claim 4, further comprising a signal conditioning circuit for limiting the voltage of the direct current control signals to a desired level.

7. (original) The circuit of claim 1, further comprising a visual indicator of the operative state of the circuit.

8. (original) The circuit of claim 7, wherein the visual indicator is a light emitting diode coupled to be energized upon application of the control signal.

9. (original) The circuit of claim 1, wherein the leakage current suppression circuit includes a pair of resistors in series about a node, and wherein the leakage current suppression circuit is operative to place the solid state switch in a conducting state when a voltage at the node is above a desired level.

10. (original) The circuit of claim 9, wherein the node is coupled to a base of the solid-state switch.

11. (currently amended) A control circuit for an electrical relay, the circuit comprising:

a rectifier circuit for receiving AC or DC control signals and for outputting DC control signals;

a DC bus coupled to the rectifier circuit for receiving the DC control signals;

a control signal conditioning circuit coupled to the DC bus for conditioning the DC control signals;

a solid state switch configured to be coupled across the DC bus in series with a relay operator to control energization of the relay operator; and

a leakage current suppression circuit configured to be coupled across the DC bus electrically in parallel with ~~the relay operator and~~ the solid state switch to conduct leakage current leaking into the control circuit and to place the switch in a conducting state and thereby to energize the relay operator when a control signal current level is above [[a]] an input leakage current threshold, and to place the switch in a non-conducting state and thereby to deenergize the relay operator when the control signal level is below [[a]] an input leakage current threshold.

12. (original) The circuit of claim 11, further comprising an input signal conditioning circuit electrically upstream of the rectifier circuit.

13. (original) The circuit of claim 11, wherein the control signal conditioning circuit includes a capacitor for smoothing the DC control signals.

14. (original) The circuit of claim 11, wherein the control signal conditioning circuit includes a diode for limiting the voltage of the DC control signals to a desired level.

15. (original) The circuit of claim 11, further comprising a visual indicator of the operative state of the circuit.

16. (original) The circuit of claim 15, wherein the visual indicator is a light emitting diode coupled to be energized upon application of the control signal.

17. (original) The circuit of claim 11, wherein the leakage current suppression circuit includes a pair of resistors in series about a node, and wherein the leakage current suppression circuit is operative to place the solid state switch in a conducting state when a voltage at the node is above a desired level.

18. (original) The circuit of claim 17, wherein the node is coupled to a base of the solid-state switch.

19. (currently amended) A relay control circuit comprising:

a relay having an operator and at least two output lines;

a solid state switch coupled in series with the relay operator to control energization of the relay operator; and

a leakage current suppression circuit coupled electrically in parallel with the solid state switch ~~and the relay operator~~, the leakage current suppression circuit being operative to conduct leakage current leaking into the control circuit and to place the switch in a conducting state and thereby to energize the relay operator when a control signal current level is above [[a]] an input leakage current threshold, and to place the switch in a non-conducting state and thereby to deenergize the relay operator when the control signal level is below [[a]] an input leakage current threshold.

20. (original) The circuit of claim 19, wherein the relay is an electromechanical relay and the operator is a coil.

21. (original) The circuit of claim 19, wherein the relay is supported on a terminal block, and wherein the solid state switch and the leakage current suppression circuit are supported on a circuit board mounted within the terminal block.

22. (original) The circuit of claim 21, wherein the terminal block includes connections for routing the output lines to terminal points.

23. (original) The circuit of claim 19, further comprising a rectifier circuit for converting alternating current control signals to direct current control signals.

24. (original) The circuit of claim 23, further comprising a signal conditioning circuit for smoothing the direct current control signals.

25. (original) The circuit of claim 23, further comprising a signal conditioning circuit for limiting the voltage of the direct current control signals to a desired level.

26. (original) The circuit of claim 19, further comprising a visual indicator of the operative state of the circuit.

27. (original) The circuit of claim 19, wherein the leakage current suppression circuit includes a pair of resistors in series about a node, and wherein the leakage current suppression circuit is operative to place the solid state switch in a conducting state when a voltage at the node is above a desired level.

28. (original) The circuit of claim 27, wherein the node is coupled to a base of the solid-state switch.

29. (currently amended) A terminal block relay assembly comprising:

a terminal block including input terminals, output terminals, a bay for receiving a relay, and connections for routing signals between the terminals and the relay;

a relay disposed in the bay and coupled to the connections, the relay having an operator;

a circuit board supported in the terminal block and coupled to the input terminals and to the relay operator via two of the connections;

a solid state switch supported on the circuit board and coupled in series with the relay operator to control energization of the relay operator; and

a leakage current suppression circuit supported on the circuit board and coupled electrically in parallel with the solid state switch ~~and the relay operator~~, the leakage current suppression circuit being operative to conduct leakage current leaking into the terminal block relay assembly and to place the switch in a conducting state and thereby to energize the relay operator when a control signal current level is above [[a]] an input leakage current threshold, and to place the switch in a non-conducting state and thereby to deenergize the relay operator when the control signal level is below [[a]] an input leakage current threshold.

30. (original) The circuit of claim 29, wherein the relay is an electromechanical relay and the operator is a coil.

31. (original) The circuit of claim 29, further comprising a light emitting diode coupled to be energized upon application of the control signal, the light emitting diode producing a visual indication of the operative state of the control signal visible from a side of the terminal block.

32. (original) The circuit of claim 29, wherein the leakage current suppression circuit includes a pair of resistors in series about a node, and wherein the leakage current suppression circuit is operative to place the solid state switch in a conducting state when a voltage at the node is above a desired level.

33. (original) The circuit of claim 32, wherein the node is coupled to a base of the solid-state switch.

34. (previously presented) A method for controlling a relay circuit, the method comprising:

controlling a conductive state of a solid state switch in series with a relay coil such that the relay coil is energized if a current level of an input control signal is above a predetermined input leakage current threshold level and is deenergized if the current level of the input control signal is below a predetermined input leakage current threshold level.

35. (original) The method of claim 34, wherein the solid state switch is disposed electrically in parallel with a leakage current suppression circuit having a pair of resistors and a node, and wherein the conductive state of the solid state switch is controlled based upon voltage at the node to regulate energization of the coil.

36. (original) The method of claim 35, wherein the voltage at the node is applied to a base of the solid state switch, and wherein current applied to the base of the solid state switch is limited.

37. (original) The method of claim 34, further comprising conditioning the input control signal to convert an AC input control signal to a DC input control signal and to smooth the DC input control signal.

38. (original) The method of claim 34, further comprising providing a visual indication of an operative state of the input control